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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,423	05/30/2001	Raghavendra U. Udupa	JP920010007US1	1406

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EXAMINER
BOWEN, MICHAEL WAYNE

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<table>
<tr>
<td rowspan="2">Office Action Summary</td>
<td>Application No.
09/872,423</td>
<td>Applicant(s)
UDUPA ET AL.</td>
</tr>
<tr>
<td>Examiner
Michael W. Bowen</td>
<td>Art Unit
2625</td>
</tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 May 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-52</u> is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-4,6-24,31-33 and 36-52</u> is/are rejected.

7)☒ Claim(s) <u>5,25-30,34 and 35</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>30 January 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/30/01</u>.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 7, 18, 19, 33, 40, 43-45, 47, 49, and 52 are rejected under 35 U.S.C

102(b) as being unpatentable over Riganati et al. (U.S. Patent 4,135,147, hereinafter

referred to as Riganati).

2.   Regarding claim 1, Riganati discloses the following:

A method of fingerprint verification suitable for determining whether a claimant

(i.e. unknown fingerprint, col. 4, lines 39-40) is one of a number of enrollees (i.e.

previously identified fingerprints, col. 4, line 42), the method comprising:

Identifying minutiae of an enrollee fingerprint, and minutiae of a claimant

fingerprint (i.e. each minutia from each fingerprint is described by its relative

position and orientation and is selectively encoded in a relative information vector

(RIV) format. See col. 2, lines 34-37. Also see minutiae reader in fig. 3. The

minutiae are grouped into neighborhoods or subsets. See col. 6, lines 4-10, 30-

35);

Analysing the geometrical correspondence between minutiae of the claimant

fingerprint and minutiae of the enrollee fingerprint via affine transformation (refer

to col. 11, lines 44-55, where Riganati explains how a subset of the minutiae of

the claimant fingerprint A are translated and rotated in order to match the

positions of corresponding minutiae of the enrollee or fingerprint B. Also refer to

the coordinate transformation circuit 75 in fig. 5); and

Determining whether the claimant fingerprint and the enrollee fingerprint match

on the basis of said analysis (see col. 11, lines 44-62, where Riganati explains

how the transformation information is used to produce "a final score which

quantitatively indicates the degree of similarity between those two fingerprints."

See also the inputs of score processor 43 in fig. 5).

Riganati discusses a minutiae pattern matching method in the context of

fingerprint identification (one-to-many matching) rather than verification (one-to-one

matching); however, the method applies equally well to the method of verification

described in claim 1. Riganati states, "...the system can determine whether the identity

of the person who left fingerprint A is in the known reference file." (Col. 4, lines 44-46).

With regard to claim 1, it is understood that a combination of translation and

rotation constitutes an affine transformation.

3.   Regarding claim 2, Riganati discloses the following:

The method as claimed in claim 1, further comprising:

Selecting identified subsets of the enrollee minutiae (i.e. small region or minutiae

neighborhood or minutiae cluster, col. 4, lines 37-42) and identified subsets of

the claimant minutiae (see previous reference to neighborhoods or clusters), in

which each of the identified subsets has an associated index minutiae (i.e.

reference or center minutia, col. 6, lines 9-10) which is a member of that

identified subset.

4.   With regard to claim 3, Riganati reveals:

The method as claimed in claim 2, wherein minutiae are selected for inclusion in

said identified subsets if the geometrical separation between the minutiae and

the index minutiae falls within a predetermined range between a finite minimum

and a finite maximum (i.e. ...use a thresholded value of r for the determination of

an RIV neighborhood around each minutia, col. 9, lines 20-21. Recall that an RIV

is a description of a minutia neighborhood, as defined in col. 2, lines 34-40 and

col. 6, lines 4-8. In col. 19, lines 10-12, Riganati states that the radial distance of

the minutia neighborhood ranges from 0 to the threshold R_T. Hence, the finite

minimum is 0 and the finite maximum is R_T).

5.   Claim 6 is rejected because it is anticipated by Riganati, which reveals the

following:

The method as claimed in claim 2, wherein the minutiae which are members of

said identified subsets are ranked (i.e. selectively sort the new neighboring

minutia, col. 18, lines 55-56) according to a predetermined ordering criterion (i.e.

according to its relative distance from the center minutia, col. 18, lines 57-58)

indicative of a possible correspondence between the minutiae of different

identified subsets of the same of different fingerprints.

6.   Regarding claim 7, Riganati discloses the following:

The method as claimed in claim 6, wherein said predetermined ordering criterion

is increasing geometrical distance to respective minutiae from a particular index

minutiae which is a member of said identified subset.

As noted in the response to claim 6, Riganati reveals a radial order sorter (fig. 8,

item 129) that sorts minutiae in each neighborhood or subset based on the geometric

distance from the center or index minutia (col. 18, lines 53-58). The direction of the

sorting (ascending or descending) is not explicitly stated by Riganati; however, it is

understood that either method would fall within the scope of the prior art (col. 42, lines

31-34).

7.   Regarding claim 18, Riganati reveals the following:

The method as claimed in claim 2, wherein said analysis further includes

determining one or more proposed transformations (see the coordinate

transformation circuit 75 in fig. 5) that map one of the identified claimant subsets

to one of the identified enrollee subsets (i.e. the center minutiae and neighboring

minutiae of the A and B fingerprints match up, col. 11, lines 44-55), for respective

identified subsets that meet a predetermined criterion (i.e. The RIV formatted

results use a thresholded value of r for the determination of an RIV neighborhood

around each minutia, col. 9, lines 19-21).

8. Claim 19 is similar to claim 3 and therefore it is also anticipated by Riganati. The

following is revealed by Riganati:

The method as claimed in claim 18, wherein said predetermined criterion is

geometrical separation, between the minutiae and the index minutiae (i.e.

distance r, col. 9, lines 19-21), within a predetermined range between a finite

minimum and a finite maximum (i.e. thresholded value, col. 9, lines 19-21. Note

that the predetermined range lies between zero and the threshold).

9. Regarding claim 33, Riganati discloses the following:

The method as claimed in claim 2, wherein said determination involves

calculating a score (i.e. match score, col. 11, line 20; final score, col. 11, line 60)

representative of the correspondence between a claimant fingerprint (i.e.

fingerprint A, col. 11, line 59) and the enrollee fingerprint (i.e. fingerprint B, col.

11, line 59) for use in determining that the claimant fingerprint and the enrollee

fingerprint match, if the scores exceed a predetermined minimum value (i.e.

threshold signal, col. 37, line 55).

10.   Claim 40 is rejected because it is constructed entirely from rejected claims 1 and

2.

11.   Claim 43 describes a computer program that performs steps which are identical

to those in claim 1 (identifying minutiae, geometrical correspondence, affine

transformation, fingerprint matching); therefore, claim 43 is rejected on the same basis

as claim 1.

12.   Claim 44 describes a computer program that performs a step which is identical to

that of claim 2 (subsets of minutiae, index minutia). Therefore, claim 44 is rejected on

the same basis as claim 2.

13.   Claim 45 describes a computer program that performs a step which is identical to

that of claim 3 (selecting minutia into a subset based on a distance threshold);

therefore, claim 45 is rejected using the same rationale as for claim 3.

14.   Claim 47 describes a computer program with the same feature of claim 6

(ranking minutiae); therefore, claim 47 is rejected on the same basis as claim 6.

15.   Claim 49 describes a computer program with features that are identical to those

of claim 18. Thus, claim 49 is rejected on the same basis as claim 18.

16.   Claim 52 describes a computer program with features identical to claim 33 and

therefore claim 52 is rejected on the same basis as claim 33.

Claim Rejections - 35 USC § 103

17.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

18.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riganati

and further in view of the article "Fingerprint Image Analysis for Automatic Identification"

by B.M. Mehtre, hereinafter referred to as Mehtre. As discussed, Riganati discloses the

limitations of claims 1-3. Riganati does not disclose the limitation of claim 4.

However, Mehtre reveals the following:

> The method as claimed in claim 1, wherein minutiae are eliminated from and/or
>
> not selected for inclusion in said identified subsets if the minutiae is determined
>
> to be positioned on or near the boundary of the claimant or enrollee fingerprint
>
> (i.e. All the border minutiae are also deleted. See p. 135, col. 1, paragraph 4,
>
> sentence 1.).

Riganati and Mehtre are analogous art because they both describe a method of

fingerprint analysis involving minutiae. It would have been obvious for one with ordinary

skill in the art at the time of the invention to combine the boundary method of Mehtre

with the verification method of Riganati because the pruning of boundary features would

significantly reduce the occurrence of false minutiae. As Mehtre states in the same

paragraph cited above, "It is observed that on average about 20-30% of the spurious

minutiae get eliminated in the postprocessing stage" of his method. It is understood that

the method of Mehtre applies to both the claimant and enrollee fingerprints.

19.   Claims 8, 9, 11-17, 20-24, 31, 32, 36-39, 41, 42, 46, 48, 50, and 51 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Riganati in view of Califano et al.

(U.S. Patent 6,041,133, hereinafter referred to as Califano).

20.   Regarding claim 8, Riganati reveals the limitations of claim 6, but he does not

reveal the following:

>   The method as claimed in claim 6, wherein said predetermined ordering criterion
>
>   is increasing difference in rotational ridge orientation between respective
>
>   minutiae and a particular index minutiae which is a member of said identified
>
>   subset.

Califano discloses a method in which the subset minutiae are sorted (i.e. sides

are ordered, col. 9, lines 6-7) based on rotational ridge orientation (i.e. local direction

angle, col. 8, lines 29-34). Riganati and Califano are analogous art because they both

describe a method of fingerprint analysis involving minutiae. It would have been obvious

to one skilled in the art at the time of the invention to modify the verification method of

Riganati based on the sorting method of Califano because ridge orientation was a well-

known property in the art which would have provided an improved and efficient system for matching fingerprints (col. 1, lines 47-49).

21.   Regarding claim 9, Riganati reveals the limitations of claim 6, but he does not reveal the following:

> The method as claimed in claim 6, wherein said predetermined ordering criterion is increasing ridge count between respective minutiae and a particular index minutiae which is a member of said identified subset.

> Califano describes a method in which ridge count is used as a criterion (col. 8, lines 29-34) for sorting the minutiae (col. 9, lines 6-7). The fingerprint verification method disclosed by Califano is analogous to the art disclosed by Riganati and therefore it would have been obvious for one skilled in the art at the time of the invention to combine the sorting method of Califano with Riganati because this would provide an improved and efficient system for matching fingerprints (col. 1, lines 47-49).

22.   Regarding claim 11, Riganati reveals the limitations of claim 2, but he does not reveal the following:

> The method as claimed in claim 2, wherein said identified subsets are classified in one of a plurality of bins which are defined on the basis of a predetermined metric associated with or derived from properties relating to the minutiae which are members of said identified subsets.

However, Califano discloses a method of classifying subsets of minutiae into bins based on parameters associated with the minutiae in the subsets (col. 8, lines 4-11, 29-34). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the classification method of Califano with the verification method of Riganati because they are analogous art and this is a well-known method of reducing the search space when testing for a match.

23.   Claims 12-16 specify the use of metrics such as geometrical separation and distribution of ridge counts for binning. Since the binning method of Califano (col. 8, lines 4-11, 29-34) that applies to claim 11 broadly specifies the use of invariant parameters associated with subset minutiae, claims 12-16 fall within the scope of Califano. Therefore, claims 12-16 are rejected.

24.   Regarding claim 17, Riganati reveals the limitations of claim 11, but he does not disclose the following:

The method as claimed in claim 11, wherein said analysis is performed for identified claimant subsets and identified enrollee subsets that are classified in the same bin.

However, Califano discloses the analysis of corresponding binned minutiae via affine transformation (col. 10, lines 44-51). The minutiae are binned as described in col. 8, lines 4-11. It would have been obvious to modify the verification method of Riganati

based on Califano because the analysis method of Califano is analogous art that would

improve the efficiency of the method of Riganati.

25.   Regarding claims 20-22, Riganati discloses the limitations of claim 18, but he

does not specify threshold criteria such as maximum difference in distance and

maximum difference in ridge counts for mapped subsets of claimant and enrollee

minutiae. However, Califano describes similar criteria (see col. 8, lines 4-7, 29-34). In

addition, a maximum value is described (see col. 8, lines 50-55). It would have been

obvious to one of ordinary skill in the art at the time of the invention to use the

alternative criteria specified by Califano for the method of Riganati because the art is

analogous and the criteria are well known.

26.   Regarding claim 23, Riganati discloses a plurality of transformations, but they are

not checked for mutual consistency. However, Califano discloses such a plurality of

transformations (i.e. hypothesized matches, col. 4, lines 53-62) checked for consistency

for fingerprint matching. Riganati and Califano are analogous art as discussed

previously. It would have been obvious to one skilled in the art at the time of the

invention to combine the consistency checking method of Califano with the

transformation method of Riganati because checking multiple transformations for

consistency improves the efficiency of the fingerprint matching system.

27.   Regarding claim 24, Riganati discloses some of the limitations of claim 23, but he

does not disclose the limitations of claim 24. However, Califano reveals the following:

> The method as claimed in claim 23, wherein the proposed transformations
>
> comprise those transformations that map one of the identified claimant subsets to
>
> one of the identified enrollee subsets (i.e. parameters of the coordinate
>
> transformation which bring the subset...of features in the query fingerprint image
>
> into closest correspondence with the subset...of features in the reference
>
> fingerprint image, col. 4, lines 58-61).
>
> It would have been obvious to one skilled in the art at the time of the invention to
>
> combine the methods of Califano and Riganati because they are analogous art
>
> and this would improve the efficiency of the fingerprint matching process.

28.   Regarding claim 31, Riganati reveals the limitation of claim 1, but he does not

disclose the following:

> The method as claimed in claim 1, wherein said determination involves checking
>
> whether there is topological correspondence between selected identified claimant
>
> and enrollee subsets of minutiae.
>
> Topological correspondence is understood to mean a comparison of ridge

counts, as described in claim 32. Riganati does not disclose the use of ridge counts to

measure fingerprint topology; however, Califano reveals the use of ridge counts to

characterize subsets of minutiae (col. 5, lines 51-54, col. 8, lines 29-34, col. 9, lines 21-

24). This is used to match the enrollee and claimant fingerprints (col. 10, lines 37-39). It

would have been obvious to one skilled in the art at the time of the invention to combine

the verification method of Riganati with the topological method of Califano because they

are analogous art and a ridge count is a basic, translation invariant characteristic of a

subset of minutiae.

29.   Regarding claim 32, Califano discloses the following:

The method as claimed in claim 31, wherein topological correspondence is

determined by (i) providing a ridge count metric…and (ii) providing a ridge angle

metric…

In particular, Califano describes the general use of invariant parameters such as

ridge counts and direction angles (i.e. ridge angles) to characterize subsets of minutiae

and determine topological correspondence (col. 8, lines 29-34).

30.   Regarding claim 36, refer to the rejection of claims 1-3 and 11, which provide the

basis on which claim 36 is rejected. Claim 36 contains the same limitations as claims 1-

3 and 11, and therefore the corresponding limitations of claim 36 are rejected on the

same basis.

Riganati also reveals the following limitation of claim 36:

analysing the geometrical correspondence between minutiae of the identified

subsets of the claimant and enrollee fingerprints via affine transformation.

Riganati discloses the grouping of minutiae into neighborhoods or subsets (col.

6, lines 4-10) and characterizing these subsets with properties such as distance and

angle. Subsets of the enrollee and claimant are matched by performing translation and

rotation (i.e. affine transformation) and recording the degree of displacement required

for alignment (i.e. geometrical correspondence). See col. 6, lines 32-35 and col. 11,

lines 44-55.

31.   Regarding claim 37, refer to the rejection of claims 1, 2, 18, and 23, which

provide the basis for rejecting this claim. Riganati discloses all the features of this claim

except the following, which are revealed by Califano:

> (i) a plurality of transformations are proposed that map one of the identified
>
> claimant subsets to one of the identified enrollee subsets, for respective identified
>
> subsets that meet a predetermined criterion, and (ii) the proposed
>
> transformations are checked for consistency with each other; and
>
> determining whether the claimant fingerprint and the enrollee fingerprint match
>
> on the basis of said analysis.
>
> This aspect of the claim is similar to claim 23, and thus the rationale for rejection

is similar. Califano describes a method in which "hypothesized matches" are based on

the translation, rotation, and scaling (i.e. transformation) of subset feature points (i.e.

minutiae). See col. 10, lines 37-51. The subsets are filtered based on a predetermined

criterion (col. 9, lines 65-67). The hypothesized match is stored as a score in a vote

table (col. 11, lines 4-9), and if the associated key already exists in the table, then the

score is updated (col. 11, lines 24-29). This is a form of consistency check. The

hypothesized matches are used to determine if the claimant fingerprint and the enrollee

fingerprint are matched (col. 11, lines 36-41, 47-51).

32.   Claim 38 consists entirely of elements from claims 1, 2, 36 (section 4), 31, and

33. Therefore, claim 38 is rejected on the same basis as those claims.

33.   Claim 39 is rejected since it is constructed entirely from rejected claims 1, 2, 3,

11, 18, 23, 31, and 33.

34.   Claim 41 is similar to claims 1 and 36, except claim 41 is an apparatus claim with

the following additional limitations that are disclosed by Riganati:

    Means for sampling a claimant fingerprint (i.e. minutiae reading machine, col. 5,

    lines 3-9; fig. 3);

    Means for accessing a database of enrollee fingerprints (i.e. minutiae pattern

    matcher system selectively matches...previously identified fingerprints stored in a

    relatively large reference fingerprint file...col. 4, lines 37-43).

    The arguments shown above as well as those used for the rejection of claims 1

and 36 are applied to claim 41, which is hereby rejected.

35.   Claim 42 is similar to claim 2 (subsets of minutiae, index minutia), except claim

42 describes an apparatus instead of a method. Hence, claim 42 is rejected on the

same basis as claim 2.

36.   Claim 46 describes a computer program with the same feature of claim 4
(eliminating boundary minutiae); therefore, claim 46 is rejected on the same basis as
claim 4.

37.   Claim 48 represents a computer program with features that are the same as
those of claim 11. Therefore, claim 48 is rejected by the same reasoning as for claim
11.

38.   Claim 50 describes a computer program with features that are identical to those
described in claim 23, and therefore claim 50 is rejected on the same basis as claim 23.

39.   Claim 51 describes a computer program with the same features as claim 31;
thus, claim 51 is rejected using the same rationale as for claim 31.

40.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Riganati
as applied to claim 6, and further in view of Omori (U.S. Patent 5,524,161, hereinafter
called Omori). The sorting method of Riganati reveals the limitations of claim 6, but
does not disclose the following:

    The method as claimed in claim 6, wherein said predetermined ordering criterion

        is an increasing distance between respective minutiae and an axis defined by the

ridge angle of a particular index minutiae which is a member of said identified

subset.

However, Omori reveals a method of calculating the vertical distance between

two minutiae that are understood to be a specific or index minutia and an adjacent

minutia (col. 4, lines 60-65; col. 7, lines 62-67; fig. 11). The distance is measured

perpendicular to a line d12 that is derived from the ridge angle axis of the index minutia

(col. 7, lines 44-53). Riganati and Omori are analogous art because they both describe

a method of fingerprint analysis. It would have been obvious to combine the sorting

method of Riganati with the distance measurement of Omori because Omori describes

a basic transformation invariant method of characterizing minutiae.

Allowable Subject Matter

41.   Claims 5, 25-30, 34, and 35 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

The following claims are allowable because none of the prior art discloses in

combination with the parent claims

Claim 5:

...wherein a minutiae is determined to be positioned on or near the boundary of a fingerprint if it is less than a predetermined geometrical separation from any one of the sides of a rectangle defined by the co-ordinates of the most outlying minutiae of the fingerprint.

Claim 25:

...wherein the consistency checking involves determining differences in parameters of the respective transformations.

Claim 26:

...wherein two transformations are considered to be consistent with each other if the differences between transformation parameters of the two transformations are all below respective predetermined thresholds.

Claim 27:

...wherein the transformation parameters (x, y, β) represent two parameters of translation (x,y) and a parameter of rotation (β).

Claim 28:

...wherein the proposed transformations which are checked for consistency are limited to a predetermined number of transformations which achieve the greatest correspondence between their respective identified claimant and enrollee subsets.

Claim 29:

...wherein the correspondence between respective identified subsets is assessed in terms of the number of minutiae from the respective identified subsets that are deemed to match within a predetermined tolerance.

Claim 30:

...wherein a mutually consistent subset of the proposed transformations is identified as a result of the consistency checking.

Claim 34:

(iv) proportion of mutually consistent transformations.

Claim 35:

...wherein the score is calculated as a weighted average of values of any two or more of the listed factors.

42.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael W. Bowen whose telephone number is (571)272-5969. The examiner can normally be reached on M-F 8AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bhavesh Mehta can be reached on (571)272-7453. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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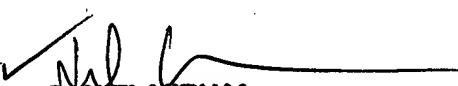
**DANIEL MIRIAM
PRIMARY EXAMINER**